PROPOSED USE OF THE PLENARY POWERS TO CORRECT AN ERRONEOUS ENTRY RELATING TO THE NAME "ASTACUS" PALLAS, 1772 (CLASS CRUSTACEA, ORDER DECAPODA), MADE IN THE "OFFICIAL LIST OF GENERIC NAMES IN ZOOLOGY" IN "OPINION" 104

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The subject matter of the present application came to notice in connection with the routine checking of the entries on the *Official List of Generic Names in Zoology* in connection with the projected publication of the *Official List* in book form, and is concerned with the erroneous entry of the name *Astacus* Pallas, 1772 (Class Crustacea, Order Decapoda) on that *List* made in the Commission's *Opinion* 104 (1928, *Smithson. misc. Coll.* **73** (No. 5) : 27).

2. Entry relating to the generic name "Astacus" Pallas, 1772, made on the "Official List of Generic Names in Zoology" in Opinion 104: In *Opinion* 104 (: 27) the reference given for the name *Astacus* was " Pallas, 1772, p. 81." The reference so given is clearly to page 81 of Volume 9 of Pallas's *Spicilogia Zoologiae*, where the name *Astacus* was in fact used by Pallas. The particulars given for the name *Astacus* Pallas, 1772, in *Opinion* 104 were as follows :—" tat. [type species by absolute tautonymy] *Cancer astacus* Linn. 1758a, 631, syn. *fluviatilis* Fab. 1775a, 413."

3. Incorrect type species given for " Astacus " Pallas, 1772, in " Opinion " 104 : On referring to Volume 9 of Pallas's *Spicil. Zool.*, I found that in the paper concerned Pallas confined himself to the description of a new Siberian species of crayfish, to which he gave the name *Astacus dauuricus*. No other species was mentioned by Pallas and the above nominal species is therefore unquestionably the type species of *Astacus* Pallas by monotypy, for, as will be recalled, the Commission had ruled in *Opinion* 47 as far back as 1912 (*Smithson. Publ.* **2060** : 108-109) that a genus is to be treated as monotypical if one species only was cited by name by its original author, even if that author made it clear that he considered that other species which he did not cite by name belonged to the genus also, a decision which, in substance, was written into the *Règles* by the Thirteenth International Congress of Zoology at Paris in 1948 (see 1950, *Bull. zool. Nomencl.* **4** : 153). Accordingly, the statement in *Opinion* 104 that *Cancer astacus* Linnaeus, 1758 (*Syst. Nat.* (ed. 10) **1** : 631) is the type species of the genus *Astacus* Pallas, 1772, is incorrect. In his description of his new species *Astacus dauuricus*, Pallas said (in the first sentence) : " Forma atque proportione astaco nostrati minori persimilis est," and it is possible that the applicant in the case which was decided upon in *Opinion* 104 may have interpreted Pallas' reference to (translated into English) " our crayfish " as constituting obliquely the inclusion of *Cancer astacus* Linnaeus, 1758, in the genus *Astacus* Pallas, 1772. Whether or not this is the explanation of the statement in *Opinion* 104 regarding the type species of *Astacus* Pallas, that statement is, as we have seen, incorrect. It is necessary therefore to consider what action should now be taken to correct or validate the entry on the *Official List* relating to this name.

4. Two possible courses of action : When I first considered this matter, it seemed to me that, other things being equal, there were two courses of action open to the Commission, each of which involved the admission that the entry on the *Official List* relating to the name *Astacus* Pallas was defective. (1) The Commission might confine itself to correcting the mistake in *Opinion* 104, that is, to giving an emended ruling stating that the type species of *Astacus* Pallas, 1772, was *Astacus dauuricus* Pallas, 1772, by monotypy, and not (as incorrectly stated in the foregoing *Opinion*) *Cancer astacus* Linnaeus, 1758, by absolute tautonymy. Clearly, the practicability of this course would depend upon whether, in the opinion of specialists, *Astacus dauuricus* Pallas, 1772, and *Cancer astacus* Linnaeus, 1758, were not only congeneric with one another but were also so closely allied that there was no reasonable risk that at some later date they would be placed in different genera with the result that *Cancer astacus* Linnaeus would cease to be subjectively referable to the genus *Astacus* Pallas. (2) It would be possible for the Commission to decide that it was so important to ensure that *Cancer astacus* Linnaeus should be permanently retained in the genus *Astacus* that the proper course for it to adopt would be to use its plenary powers to designate that species to be the type species of *Astacus* Pallas, thereby giving valid force to the until then invalid entry in regard to this generic name made in the *Official List* in *Opinion* 104.

5. Advice received from Dr. L. B. Holthuis (Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands) : At this point I put this question (in a letter dated 6th June 1951) to Dr. L. B. Holthuis (*Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands*). In his reply, dated 8th June 1951, which is being published simultaneously with the present paper, Dr. Holthuis informed me that the species *Astacus dauuricus* Pallas, 1772, was no longer considered to be congeneric with *Cancer astacus* Linnaeus, being currently referred to the genus *Cambaroides* Faxon, 1884 (*Proc. Amer. Acad Arts Sci.*, Boston **20** : 149), of which the type species was *Astacus japonicus* De Haan, 1841 (*Faun. japon.*, Crust. (5) : 164, pl. 35, fig. 9), by subsequent selection by Faxon (1898, *Proc. U.S. nat. Mus.* **20** : 665). Dr. Holthuis accordingly considered that it was " highly desirable that the Commission should take steps to prevent the confusion, which undoubtedly will arise if *Astacus dauuricus* Pallas is accepted as the type species of *Astacus*." Of the two alternative courses outlined in my letter (i.e. the two alternatives set out in paragraph 4 above), Dr. Holthuis was altogether opposed to the first, and, if no other course were open, would favour the second. Dr. Holthuis went on, however, to outline a third course (which, like my alternative (2), would involve the use by the Commission of its plenary powers) which, in his opinion, offered the best solution obtainable. Dr. Holthuis pointed out that, notwithstanding the entry on the *Official List* of *Astacus* Pallas, 1772, under *Opinion* 104, most authors treated the name *Astacus* as having been first published by Fabricius in 1775 (*Syst. Ent.* : 413) ; if that practice could be validated, no difficulty would arise in regard to the type species of this genus, since the type species of *Astacus* Fabricius, 1775, was, by selection by Latreille (1810, *Consid. gén. Crust. Arach. Ins.* : 422) the nominal species *Astacus fluviatilis* Fabricius, 1775 (*Syst. Ent.* : 413), a nominal species which was objectively identical with the nominal species

Cancer astacus Linnaeus, 1758 (the name *Astacus fluviatilis* Fabricius being only a *nom. nov.* for *Cancer astacus* Linnaeus). Dr. Holthuis accordingly suggested that the difficulty created by the mistake in *Opinion* 104 should be overcome by the Commission using its plenary powers to validate *Astacus* Fabricius, 1775 (*Astacus* Pallas, 1772, being at the same time removed from the *Official List*), rather than for the purpose of designating *Cancer astacus* Linnaeus to be the type species of *Astacus* Pallas, 1772.

6. Solution recommended : It is clearly essential that such steps as may be necessary should be taken to provide a legal foundation for the current use of such an important name as *Astacus* ; the only question therefore is how best this object can be secured. In view of the fact that (as Dr. Holthuis has explained) the majority of specialists still attribute this name to Fabricius, there would be an obvious advantage in stabilising the name *Astacus* as from that author. The force of this consideration is greatly strengthened by the fact that, if this course were to be adopted, there would no longer be any problem to solve as regards the type species of this genus. On general principles, it will also, I think, be felt that it is better to use the plenary powers for the purpose of giving valid force to action taken by an early author (in this case, by Fabricius in 1775) rather than to use those powers for the purpose of securing the same end by designating as the type species of a genus a species not included in it by its original author (in this case, by Pallas in 1772). My recommendation to the Commission is therefore that it should adopt Dr. Holthuis' suggestion and, by suppressing the name *Astacus* Pallas, 1772, under the plenary powers, so provide a firm foundation for the name *Astacus* Fabricius, 1775.

7. Uses of the generic name "Astacus" prior to Fabricius, 1775 : In the case of generic names published in the immediate sub-Linnean age, it is essential to take special steps to secure that the usage which it is proposed to accept for any given generic name has not been anticipated by some earlier author, for, owing to the imperfect state of knowledge regarding many of these rare XVIIIth century works, it is still extremely easy to overlook an early usage of a generic name, especially one which was taken over from the pre-1758 zoologists. In the present case I investigated this problem in conjunction with Dr. Karl Jordan, then President of the Commission, during the war (in 1944). From this investigation, it appeared that the name *Astacus* had been used as a generic name on three occasions prior to its use as such by Pallas in 1772. These uses were :—(1) *Astacus* Borlase, 1758, *Nat. Hist. Cornwall* : 274 ; (2) *Astacus* Gronovius, 1762, *Acta Helv.* **5** : 365 (not Vol. 4, published in 1760, as frequently stated in lists) ; (3) Gronovius, 1764, *Zoophylac. gronov.* : 227. At that time nothing was known as to the nature of Borlase's book, while Gronovius was a non-binominal "binary" author and, pending a decision (which was, in fact, taken in 1948) on the general problem of the meaning of the expression "binary nomenclature", the status of generic names published in his books was a matter of doubt. Quite recently I examined the position as regards the status of names in Borlase's *Natural History of Cornwall*, primarily as a general problem but partly also with special reference to the name *Astacus*. In the application which I have submitted to the Commission on this subject (Application Z.N.(S.)543), which was published in September 1951 (Hemming, 1951, *Bull. zool. Nomencl.* **6** : 115-118), I showed that Borlase could in no sense be regarded as a binominal author, and I recommended that the name *Astacus* Borlase, 1758, and also the name *Astacus* as used by the non-binominal " binary " author Gronovius in 1762 and 1764 should be placed on the *Official List of Rejected and Invalid Generic Names in Zoology*. For the present purposes these three old uses of the name *Astacus* may therefore be set on one side, no further action being necessary in regard to them. Needless to say, however, it will be necessary to suppress under the plenary powers the undoubtedly available name *Astacus* Pallas, 1772, if the name *Astacus* Fabricius, 1775, is to be rendered available. For the reasons explained above, the possibility cannot be excluded that the investigation carried out by Dr. Jordan and myself in 1944 may have failed to detect every use of the name *Astacus* between 1758 and 1772, while it is possible also that this name may have been used by some author in the period 1772-1775, which was not covered by the survey which we then carried out. In these circumstances, it would, I think, be prudent to follow the precedent set in similar cases, e.g. the case of the Echinoid name *Spatangus* (see 1950, *Bull. zool. Nomencl.* **4** : 526), that is, to use the plenary powers to suppress not only the name *Astacus* Pallas, 1772, but also any other use of that name prior to Fabricius, 1775, which would otherwise be available and would therefore invalidate *Astacus* Fabricius, 1775, as a junior homonym.

8. Name to be used for the type species of " Astacus " Fabricius, 1775 : As has already been noted (paragraph 5 above), (1) the nominal species which is the type species of *Astacus* Fabricius, 1775, is *Astacus fluviatilis* Fabricius, 1775, but (2) that nominal species is objectively identical with the nominal species *Cancer astacus* Linnaeus, 1758, the name *Astacus fluviatilis* Fabricius being only a *nom. nov.* for the name *Cancer astacus* Linnaeus, coined by Fabricius when he introduced for it the generic name *Astacus*, this action being due, no doubt, to the dislike entertained by Fabricius, in common with most of his contemporaries, for tautonymy between generic names and specific trivial names. The Commission has in recent times made it a practice, when using the plenary powers in relation to a given generic name, to use those powers also to secure that the nominal species which is the type species of that genus shall be whatever nominal species has the oldest available name for the taxonomic species which is, or which it is desired to make, the type species of that genus. In view of the fact that it will be necessary to use the plenary powers to suppress the name *Astacus* Pallas, 1772, if the name *Astacus* Fabricius, 1775, is to be validated, it is suggested that at the same time those powers should be used to designate *Cancer astacus* Linnaeus, 1758, as the type species of this genus in lieu of the objectively identical, but later established, nominal species *Astacus fluviatilis* Fabricius, 1775.

9. Urgency of the present case : In view of the fact that the present application is designed to secure a correction of an erroneous entry on the *Official List of Generic Names in Zoology* made in an earlier *Opinion* rendered by the Commission, the need for a decision is very pressing, for, until decisions have been taken by the Commission in this, and certain similar, cases, the publication of the *Official List* in book form will inevitably be delayed.

10. Action recommended : In the light of the foregoing considerations, the following recommendations are submitted to the International Commission on Zoological Nomenclature, namely that it should :—

(1) delete the name *Astacus* Pallas, 1772, from the *Official List of Generic Names in Zoology*, *Opinion* 104 being at the same time amended to the extent necessary for this purpose ;

(2) use its plenary powers :—
  (*a*) to suppress for the purposes, both of the Law of Priority and of the Law of Homonymy :—
    (i) *Astacus* Pallas, 1772 ;
    (ii) *Astacus*, any other otherwise available use of, as a generic name prior to *Astacus* Fabricius, 1775 ;
  (*b*) to designate *Cancer astacus* Linnaeus, 1758, in lieu of the objectively identical, but later established nominal species *Astacus fluviatilis* Fabricius, 1775, to be the type species of *Astacus* Fabricius, 1775 ;

(3) place the under-mentioned generic names on the *Official List of Generic Names in Zoology* ;—
  (*a*) *Astacus* Fabricius, 1775 (gender of generic name : masculine) (type species, by designation, as proposed in (2) (*b*) above, under the plenary powers : *Cancer astacus* Linnaeus, 1758) (to be inserted on the *Official List* in the place rendered vacant by the removal therefrom, under (1) above, of the name *Astacus* Pallas, 1772) ;
  (*b*) *Cambaroides* Faxon, 1884 (gender of generic name : masculine) (type species, by selection by Faxon (1898) : *Astacus japonicus* de Haan, 1841) ;

(4) place the following names on the *Official List of Specific Trivial Names in Zoology* ;—
  (*a*) *astacus* Linnaeus, 1758 (as published in the combination *Cancer astacus*) (trivial name of species proposed, under (2) (*b*) above, to be designated under the plenary powers to be the type species of *Astacus* Fabricius, 1775) ;
  (*b*) *japonicus* de Haan, 1841 (as published in the combination *Astacus japonicus*) (trivial name of type species of *Cambaroides* Faxon, 1884) ;

(5) place the following names on the *Official Index of Rejected and Invalid Generic Names in Zoology* ;—
  (*a*) the names specified in (2) (*a*) above, as there proposed to be suppressed under the plenary Powers ;
  (*b*) *Astacus* Erichson, 1847, *Arch. Naturgesch.* **13** (1) : 101 (a junior homonym of *Astacus* Fabricius, 1775) ;

(6) place the trivial name *fluviatilis* Fabricius, 1775 (as published in the combination *Astacus fluviatilis*) (trivial name of an objective junior synonym of *Cancer astacus* Linnaeus, 1758) on the *Official Index of Rejected and Invalid Specific Trivial Names in Zoology*.